

June 27, 1960

Dr. Ruth Sager
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Dear Ruth:

I have been meaning to answer your letter of May 20 for some time, having carried it along with me on a couple of plane trips. I mislaid my notes and will start over again.

To answer your specific questions: 1) we have not succeeded in separating the phase controlling element from the H_2 locus. However, we do not have a particularly sensitive technique for doing this. I suppose one might look for translocations of the controller to some locus which controls sugar fermentation and thereby establish a highly mutable fermenting clone. But it might then be rather difficult to establish that this was the origin of the instability.

Iino and I did spend some time in looking for environmental control of phase variation but did not succeed in establishing any definite one. I agree with your formulation in heading 3. I suspect we were driving at more or less the same point in paragraph 4.1 of our 1956 paper. It is not easy to be sure!

If nucleic information can be repressed by the output from a cytoplasmic feedback cycle, it seems to me that there is very little in the universe that could not be explained. Do your non-chromosomal determinants really fail to fit such a scheme?

Yours as ever,

Joshua Lederberg
Professor and Executive
Department of Genetics